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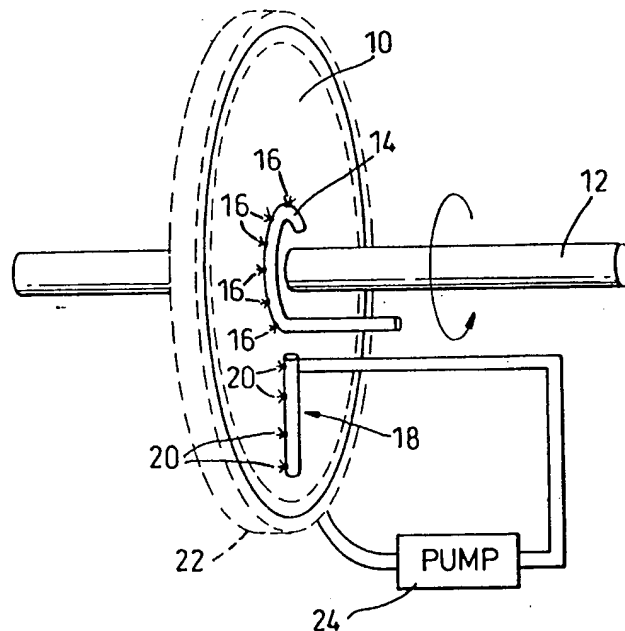
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(54) Title: ROTARY HEAT AND/OR MASS TRANSFER ARRANGEMENTS

(57) Abstract

A rotary heat and/or mass transfer arrangement in which a liquid component undergoes heat and/or mass transfer with a vapour component comprises a rotor (10) on which a layer of fluid is applied by nozzles (16). The flow across the rotor is actively disturbed by means of a radial row of nozzles (20), to enhance the heat and/or mass transfer coefficients.



Claims

1. A rotary heat and/or mass transfer arrangement, comprising:-

a rotor means for being rotated in use;

5 means for delivering a supply of liquid to a radially inner region of a surface of said rotor to provide a fluid film which flows over said surface accompanied by heat and/or mass transfer to or from said liquid, and

means for disturbing said flow, thereby to enhance at
10 least one of said heat and mass transfer.

2. A rotary heat and/or mass transfer arrangement according to Claim 1, wherein said delivering means comprises a plurality of delivery nozzle means disposed around the rotary axis of said rotor to provide in use a
15 film of substantially uniform thickness.

3. A rotary heat and/or mass transfer arrangement according to Claim 2, wherein said delivery means comprises a common pipe or conduit for supplying fluid to each of said nozzle means.

20 4. A rotary heat and/or mass transfer arrangement according to any preceding Claim, wherein said disturbing means comprises at least one disturbing nozzle means disposed radially outwardly of said delivery nozzle means.

5. A rotary heat and/or mass transfer arrangement
25 according to Claim 4, including means for collecting fluid passing from said rotor means and for supplying it to said disturbing nozzle means.

6. A rotary heat and/or mass transfer arrangement according to any of Claims 1 to 3, wherein said means for disturbing comprise said delivery nozzle means arranged such that in use the impingement of the jets from said nozzle
5 means causes non-laminar wave generation or wave interaction.

7. A rotary heat pump incorporating one or more rotary heat and/or mass transfer arrangements according to any of Claims 1 to 6.

10 8. A method of enhancing the heat or mass transfer coefficient in a rotary system comprising a rotor over which liquid is required to flow in use accompanied by heat and/or mass transfer to or from said liquid, said method comprising disturbing said liquid to provide a mixed or stirred flow.

15 9. A rotary heat and/or mass transfer arrangement comprising:-

a rotor for being rotated in use;

means for delivering a supply of liquid to a radially inner region of a surface of said rotor to flow in use over
20 said surface accompanied by heat and/or mass transfer to or from said liquid,

wherein said means for delivering comprises a plurality of nozzle means disposed about the rotary axis of said rotor, adapted to provide a mixed or stirred flow of liquid
25 across said rotor.

10. A two phase, liquid/vapour system in which in use a liquid component undergoes mass and heat transfer with a vapour component, said system comprising:-

a rotor means for being rotated in use;

means for delivering a supply of liquid to a radially
inner region of a surface of said rotor to provide a fluid
film which flows over said surface accompanied by heat
5 and/or mass transfer to or from said liquid, and

means for disturbing said flow, thereby to enhance at
least one of said heat and mass transfer.